

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (currently amended) A method of using a marker comprising an integrin alpha 10 chain ~~or an integrin alpha 10 chain and an integrin alpha 11 chain~~ expressed on the cell surface of [[a]] mesenchymal stem cells or intracellular in [[a]] mesenchymal stem cells as a marker for a subpopulation of mammalian mesenchymal stem cells, wherein said subpopulation has enhanced chondrogenic potential as compared to the rest of the mammalian mesenchymal stem cell population, wherein said method comprises the steps of

- a) providing a sample comprising [[a]] mesenchymal stem cells,
- b) contacting the sample with ~~a molecule~~ an antibody which specifically binds integrin alpha 10 chain ~~or integrin alpha 10 chain and integrin alpha 11 chain~~,
- c) detecting integrin alpha 10 chain ~~or integrin alpha 10 chain and integrin alpha 11 chain~~ expression on the cell surface of [[a]] cells of the sample or intracellular in [[a]] cells of the sample, and
- d) positively correlating the integrin alpha 10 chain ~~or integrin alpha 10 chain and integrin alpha 11 chain~~ expression detected in c) with the cells being the said subpopulation of mesenchymal stem cells.

2. (currently amended) The method according to claim 1, wherein the integrin alpha 10 chain ~~or the integrin alpha 10 chain and the integrin alpha 11 chain is/are~~ is expressed as a heterodimer~~(s)~~ in combination with an integrin beta 1 chain.

3. (currently amended) A method for identifying a subpopulation of mammalian mesenchymal stem cells, wherein said subpopulation has enhanced chondrogenic potential as compared to the rest of the mammalian mesenchymal stem cell population, the method comprising the steps of

- a) providing a sample comprising [[a]] mesenchymal stem cells,
- b) contacting the sample with ~~a molecule~~ an antibody which specifically binds integrin alpha 10 chain ~~or integrin alpha 10 chain and integrin alpha 11 chain~~,
- c) detecting integrin chain alpha 10 ~~or integrin chain alpha 10 and alpha 11~~ expression on the cell surface of [[a]] cells of the sample or intracellular in [[a]] cells of the sample,
- d) positively correlating the integrin chain alpha 10 ~~or integrin chain alpha 10 and alpha 11~~ expression detected in c) with the cells being the said subpopulation of mesenchymal stem cells, and
- e) identifying the cells in c) as ~~the~~ said subpopulation of mesenchymal stem cells according to the correlation in d).

4. (currently amended) The method according to claim 3, wherein the expression in c) above is detected by detecting the integrin chain alpha 10 ~~or integrin chain alpha 10 and alpha 11~~ protein expression.

5. (withdrawn) The method according to claim 3, wherein the expression in b) above is detected by detecting the integrin alpha 10 or the integrin alpha 10 and integrin alpha 11 mRNA expression.

6. (previously presented) The method according to claim 3, wherein the expression in c) above is detected by an immunoassay.

7. (withdrawn) A method for determining whether a test compound modulates a mammalian mesenchymal stem cell differentiation, the method comprising the steps of a) providing a mesenchymal stem cell that expresses integrin alpha 10 or the integrin alpha 10 and integrin alpha 11 b) contacting the mesenchymal stem cell with a test compound, and c) detecting a change in rate or pattern of differentiation of the mesenchymal stem cell as an indication of that the test compound modulates a mesenchymal stem cell differentiation.

8. (withdrawn) The method according to claim 7, wherein the rate or pattern of differentiation is detected by detecting integrin alpha 10 or integrin alpha 10 and integrin alpha 11 expression on the cell surface of said mesenchymal stem cell or intracellular in a mesenchymal stem cell.

9. (withdrawn) A method for producing an isolated population of mammalian cells enriched for mesenchymal stem cells relative a reference population, the method comprising the steps of a) providing at least a portion of a population of cells, or a portion of a reference population, comprising a mesenchymal stem cell and at least one cell other than a mesenchymal stem cells, b) introducing into the population of cells in a) above a compound identifying an integrin alpha 10 chain or integrin alpha 10 and integrin alpha 11 chain expressed on the cell surface of a mesenchymal stem cell or

intracellular in a mesenchymal stem cell, c) selecting and isolating from the population of cells in b) above the mesenchymal stem cells, thereby producing a population of cells enriched for mesenchymal stem cells.

10. (withdrawn) The method according to claim 9, wherein the mesenchymal stem cells is identified as a mesenchymal stem cell by detecting expression of integrin alpha 10 or integrin alpha 10 and alpha 11 chain expression on the cell surface of said mesenchymal stem cells.

11. (withdrawn) The method according to claim 9, wherein the selection in c) above is performed by fluorescent cell sorting.

12. (withdrawn) An enriched mammalian cellular population of mesenchymal stem cells, comprising at least one intact, viable mesenchymal stem cell, wherein the mesenchymal stem cell are characterized by a) expressing an integrin alpha 10 chain or integrin alpha 10 and integrin alpha 11 chain on the cell surface of or intracellular in said mesenchymal stem cell, b) being substantially free from expression of molecules specific for committed lymphohaematopoietic cells or uncommitted stem cells.

13. (withdrawn) An isolated mammalian mesenchymal stem cell expressing a marker comprising an integrin alpha 10 chain or an integrin alpha 10 chain and an integrin alpha 11 chain expressed on the cell surface of a mesenchymal stem cell or intracellular in a mesenchymal stem cell, obtainable by the method for producing a population of cells enriched for mesenchymal stem cells according to claim 9.

14. (withdrawn) A mammalian cellular composition comprising the enriched cellular population according to claim 12.

15. (currently amended) A method for identification of a subpopulation of mammalian mesenchymal stem cells, wherein said subpopulation has enhanced chondrogenic potential as compared to the rest of the mammalian mesenchymal stem cell population, comprising utilizing a marker comprising an integrin alpha 10 chain or ~~an integrin alpha 10 chain and an integrin alpha 11 chain~~ expressed on the cell surface of [[a]] mesenchymal stem cells or intracellular in [[a]] mesenchymal stem cells, wherein said method comprises the steps of

- a) contacting a sample comprising [[a]] mesenchymal stem cells with a ~~molecule~~ an antibody which specifically binds the marker,
- b) detecting the marker in [[a]] cells of the sample, and
- c) identifying the cells in b) as the said subpopulation of mammalian mesenchymal stem cells based on the presence of the marker.

16. (withdrawn) A method for modulating differentiation of a mammalian mesenchymal stem cell, comprising utilizing a marker comprising an integrin alpha 10 chain or an integrin alpha 10 chain and an integrin alpha 11 chain expressed on the cell surface of a mesenchymal stem cell or intracellular in a mesenchymal stem cell.

17. (withdrawn) A method for isolating a mammalian mesenchymal stem cell comprising utilizing a marker comprising an integrin alpha 10 chain or an integrin alpha 10 chain and an integrin alpha 11 chain expressed on the cell surface of a mesenchymal stem cell or intracellular in a mesenchymal stem cell.

18. (withdrawn) A mammalian cellular composition comprising the isolated mesenchymal stem cell according to claim 13.

19. (currently amended) The method according to claim 1, wherein the ~~molecule~~
antibody in b) is ~~an~~ a monoclonal antibody or fragment thereof.

20. (cancelled)

21. (currently amended) The method according to claim 3, wherein the ~~molecule~~
antibody in b) is ~~an~~ a monoclonal antibody or fragment thereof.

22. (cancelled)